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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,082	03/06/2006	Roger Francis Golder	041129-0115	2267

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EXAMINER	
HE, AMY	
ART UNIT	PAPER NUMBER
2858	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,082	GOLDER ET AL.	
	Examiner	Art Unit	
	Amy He	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-17* is/are pending in the application.

4a) Of the above claim(s) *13-16* is/are withdrawn from consideration.

5)☒ Claim(s) *12* is/are allowed.

6)☒ Claim(s) *1,2,4-6,8-11 and 17* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Newly submitted claims 13-16 are directed to inventions that are independent or distinct from the invention originally claimed because claims 13-16 are directed to an apparatus for characterizing a particle comprising an electrical charge sensor with a pathway having at least three electrodes, wherein a charge signal is derived from the difference between a charge on a central electrode and a charge on the connected two outer electrodes.

The invention of claims 13-16 and the invention as originally claimed are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the apparatus as claimed in the invention as originally claimed does not require the particulars of the subcombination as claimed, e.g., the specifics of a pathway having at least three electrodes including a central electrode and two outer electrodes connected together. The subcombination has separate utility such as a charge sensor for measuring the charge of a substance under evaluation.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13-16 are withdrawn from consideration

as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 4-6, 8, 10-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singer et al. (U. S. Patent No. 5, 214,386).

As for claims 1-2, 10-11 and 17, Singer et al. discloses an apparatus/method (in Figures 4, 5 and 7; abstract; col. 6, lines 34-50) for characterizing a particle in a tube (pipe 17) comprising a plurality of electrodes (3, 38, 40) space along the tube, wherein the apparatus/method comprises electric charge sensor (sensor unit 11 or 41 when used for determine charge) adapted to determine an electrical charge on the particle and means (computer or microprocessor 36; or sensor unit 11 or 41 when used for determine size, velocity or concentration of the particle) adapted to determine a second characteristic of the particle, wherein the apparatus is adapted to provide an indication of the nature of the particles (size, charge, velocity, concentration and/or size distribution of the particle) according to the charge and the second characteristic.

Still referring to claims 1-2,10-11 and 17, Singer et al. does not disclose using an optical device to determine the second characteristic. However, Singer et al. teaches that it is conventional in the art to use optical measuring device for measuring particle sizes (col. 1, lines 13-22). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to incorporate the use of a conventional optical device, for measuring particle sizes greater than 0.1 micron, so as to measure a second characteristic, such as particle size, for comparison purposes (col. 5, lines 18-21).

As for claim 4, Singer et al. discloses that the first means (11 or 41) includes a pathway (pathway as defined by measuring pipe 17) for the particles and a plurality of electrodes (3) spaced along the pathway arranged to provide an electrical output (outputted to amplifier 9) as the particles pass along the pathway.

As for claim 5, Singer et al. discloses (in Figure 2) that the pathway is provided by an electrically isolative tube (plastic measuring pipe 17, col. 4, lines 27-29) and that the electrodes (3) are provided on an external surface of the tube (17).

As for claim 6, Singer et al. discloses five electrodes (see the plurality of electrodes 38, 40 as shown in Figure 6) spaced along the pathway.

As for claim 8, Singer et al. dose not specifically disclose that the tube (17) has an internal diameter of substantially 0.5 mm. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to disclose the tube having an internal diameter of substantially 0.5 mm, or other desired values, for the purpose of providing the appropriate tube diameter value for matching

the sensor unit to other pollutant concentrations, and for improving analysis time or analysis volume (col. 5, lines 17-24).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singer et al. (U. S. Patent No. 5, 214,386), in view of Applicant's admitted prior art (see specification page 5, lines 13-14)

As for claim 9, Singer et al. does not specifically disclose that the apparatus further comprising a filter adapted to prevent particles greater than substantially 10 micron entering the tube.

Applicant admitted in the specification "an elutriation filter of known kind is used to remove particles outside the range of 1 to 10 micron" (see specification page 5, lines 13-14).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to use a conventional elutriation filter, as taught by applicant's admitted prior art, for the purpose of removing particles having a size grater than the maximum size of the test range of interest.

Allowable Subject Matter

4. Claim 12 is allowed.

5. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. With respect to applicant's arguments that Singer does not teach or suggest combining charge measurement with another analytical technique to identify the nature of a particle; and that Singer does not teach or suggest including an optical device to obtain optical information to characterize a particle; or that Singer teaches away from using an optical device, the examiner respectfully disagree. Singer discloses a method and apparatus for measuring any of the size, charge, velocity and concentration of the particles. The sensor unit of Singer (11 or 41) can be used as a charge sensor for determining an electrical charge, and the same sensor unit could be used as a means for determining a second characteristic/size of the particle. Furthermore, Singer recites "it is known to use optical measuring process to detect particle sizes, concentration and flow velocities" (col. 1, lines 13-15). Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Singer to use a conventional optical device, to characterize the size, concentration or flow velocities of the particles with sizes greater than 0.1 micron, for comparison purposes (col. 5, lines 18-21).

7. Applicant's arguments with respect to claims 7 and 12 have been fully considered and are persuasive. The rejections to claims 7 and 12 as stated in the prior office action have been withdrawn.

8. Applicant's arguments with respect to claim 9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
January 18, 2007.

ANDREW H. HIRSHFELD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800